BLM - SURPRISE FIELD OFFICE

North Larkspur Allotment #01115

DOCUMENTATION FORM FOR DETERMINATIONS:
ACHIEVEMENT OF RANGELAND HEALTH STANDARDS,
CONTRIBUTING FACTORS AND APPROPRIATE ACTION PRIORITIES

THIS FORM DOCUMENTS, FOR THE INDICATED AREA: (1) DETERMINATIONS AND SUPPORTING RATIONALE REGARDING IF FUNDAMENTAL RANGELAND HEALTH CONDITIONS CITED IN 43 CFR 4180.1 EXIST IN THESE AREAS; (2) DETERMINATIONS, IN CASES WHERE ONE OR MORE CONDITIONS OF FUNDAMENTAL RANGELAND HEALTH DO NOT EXIST, REGARDING THE STANDARD(S) THAT IS (ARE) NOT ACHIEVED; (3) DETERMINATIONS, IN THOSE CASES WHERE ONE OR MORE STANDARDS ARE NOT ACHIEVED, REGARDING THE CONTRIBUTING FACTOR(S) THAT IS (ARE) PREVENTING STANDARD(S) ACHIEVEMENT OR IS (ARE)PREVENTING SIGNIFICANT PROGRESS TOWARDS ITS (THEIR) ACHIEVEMENT; AND, (4) THE INFORMATION THAT WAS EXAMINED THAT SUPPORT THESE DETERMINATIONS.

Indicate the date(s) or period the information review occurred: **October 2005 and April 2008**

PART I - IDENTIFICATION OF RELEVANT AREA

A. Indicate area where these determinations and rationale apply:

1. ☐ **Site** (Specific Geographic Area) within Management Unit (allotment or pasture):
   Allotment name/no.: North Larkspur Allotment
   Place name: _____
   Legal location (if needed to ID site): T. 45, R. 17, Sect. 5
   Approximate size in acres: 7,352 acres
   (or linear length if lotic riparian)
2. ☐ **Management Unit** (allotment or pasture - list name / no. / acres):
   North Larkspur Allotment #1115 - 7,352 acres total, (5,432 public, 620 state and 1,300 private)
3. ☐ **Landscape** (identify by groups of management units, or by watershed if cross-cutting MU's and list):
   _____
4. ☐ **Other Stratification** (identify - e.g., all riparian areas in XYZ Pasture):
   _____

PART II - IDENTIFICATION OF INFORMATION REVIEWED

The following information (e.g. monitoring, literature, personal communication, etc.) was considered to determine standards attainment and, if applicable, contributing factor(s) to their non-achievement and failure to make significant progress towards their achievement. The following information was reviewed in **April of 2008** to determine standards attainment in compliance with 43 CFR 4180.2**: Actual use reports, utilization, and field data.**

The following information (e.g. monitoring, literature, personal communication, etc.) was considered to determine standards attainment and, if applicable, contributing factor(s) to their non-achievement and failure to make significant progress towards their achievement.

Field Data Indicators Observed at evaluation site on the North Larkspur Allotment #1115, October 2005:

Rangeland Health Attributes		**Extreme**	**Moderate to Extreme**	**Moderate**	**Slight to Moderate**	**None to Slight**	∑
Soils	Soils/Site Stability Indicators 1-9 & 11					**10**	**10**
Hydrologic	Hydrologic Function Indicators 1-5, 8-11 &14			**1**		**9**	**10**
Biotic	Biotic Integrity Indicators 8-9 & 11-17				**2**	**5**	**7**

Discussion of Specific Indicators (as needed):

North Larkspur Allotment 2005 Evaluation Sites:

Pasture Name	Site Number	Ecological Site Name
N/A	**NV 24 - 20**	**Droughty Loam 8 - 10" P.Z.**

One moderate departure in plant community composition and distribution relative to infiltration was observed on the Droughty Loam 8 - 10" ecological site because of a of lack of deep rooted perennial grasses such as Thurber's needlegrass and Indian ricegrass along with an increase in shallow rooted perennial grasses such as Sandberg's bluegrass.

A. Information relevant to **UPLAND SOILS, STANDARD 1**:
Northeast California/Northwest Nevada Resource Advisory Council Standards and Guidelines:
Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform, and exhibit functional biological, chemical, and physical characteristics.

Meaning that: Precipitation is able to enter the soil surface and move through the soil profile at a rate appropriate to soil type, climate, and landform; the soil is adequately protected against human caused wind or water erosion; and the soil fertility is maintained at, or improved to, the appropriate level.

Indicator(s) Observed Information Reference (i.e. identify the information source used by type and date)

Comments / Remarks: **Answers to the following were based on data collected on the North Larkspur Allotment #1115 in October 2005 Upland Health Assessment along with professional judgment, management and observations on the allotment and a follow-up site visit on April 3, 2008. Soils and ecological site information was obtained from the Soil Survey of Surprise Valley/Home Camp Area, 2006.**

Criteria

1. IS ground cover (vegetation, litter, and other types of ground cover, such as rock fragments) sufficient to protect sites from accelerated erosion? **Yes, there are numerous rocks and boulders, as well as a suitable amount of vegetative litter to protect the soils from erosion. Vegetation line-intercept transects were conducted at one site in the North Larkspur Allotment during July, 2005. Yes, data summarized from the Line-Point Intercept transects (1 monitoring site, 3 lines per site) showed the allotment average as: 52% Canopy Cover, 6% Bare Ground, 6% Basal Cover and 59% Litter Cover. The summary of the Line-Point Intercept and Gap Intercept Data can be found in Appendix A.**

The Soil Stability Test data plots average rating for the allotment were: 5.61 for all samples, 5.44 for protected samples and 5.78 for the unprotected samples. The Ecological Reference site (Droughty Loam 8 - 10 P.Z.) range is 3 - 6 for the soil stability rating. The North Larkspur Allotment has an abundance of total cover to protect the soils from wind and water (raindrop and surface flow) impacts and the Soil Stability rating is well within the range for the reference site.

2. IS evidence of wind and water erosion, such as rills and gullies, pedestalling, scour, or sheet erosion, and deposition of dunes either absent or, if present, does not exceed what is natural for the site? **Yes, as stated above, the soil has an abundance of total cover to protect the soil from wind and water (raindrop and surface flow) impacts for the site. Erosion is present, however there is no evidence of rills, gullies, pedestalling or abnormal erosion that is not characteristic of the site. The ecological site reference worksheet states that 'water flow patterns are rare but can be expected in areas subjected to summer convection storms or rapid snowmelt. Pedastalling is considered rare for this site, and occurrence is usually limited to areas of water flow patterns. Gullies are considered rare in areas of this site that occur on stable landforms, however, where this site occurs on inset fans, gullies and head cuts associated with ephemeral channel entrenchment may be present.'**

3. IS vegetation vigorous and diverse in species composition and age class, and does it reflect the Potential Natural Community or Desired Plant Community for the site? **Yes, however there is a component of annual grass present in the sites. All of the vegetation components expected in the DPC or PNC are present, however there seems to be a larger component of shallow rooted perennial grasses such as Sandberg's bluegrass (*Poa secunda*) and Bottlebrush squirreltail (*Elymus elymoides*) than expected for the site, with a smaller than expected deep rooted perennial grass component. Thurber's needlegrass (*Achnatherum thurberianum*) was noted as missing form the assessment site. This site is expected, as referenced in the ecological site reference worksheet, to have deep rooted perennial grasses as the dominant component of the plant community. Recovering these sites to PNC**

will not likely occur in the foreseeable future by simply changing the livestock grazing management. Overall, the shrubs and forbs in the allotment are vigorous and diverse.

B. Information relevant to the **STREAM HEALTH, STANDARD 2**:
Northeast California/Northwest Nevada Resource Advisory Council Standards and Guidelines:
Stream channel form and function are characteristic for the soil type, climate, and landform.

Meaning that: Channel gradient, pool frequency, width to depth ratio, roughness, sinuosity, and sediment transport are able to function naturally and are characteristic of the soil type, climate, and landform.

Comments / Remarks: **N/A - There are no perennial streams located on public lands within the allotment.**

C. Information relevant to the **WATER QUALITY, STANDARD 3**:
Northeast California/Northwest Nevada Resource Advisory Council Standards and Guidelines:
Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the State standards within the respective boundaries of the States of California and Nevada.

Comments / Remarks: **N/A - There are no streams or wetlands located on public lands within the allotment.**

D. Information relevant to the **RIPARIAN AND WETLAND SITES, STANDARD 4**
Northeast California/Northwest Nevada Resource Advisory Council Standards and Guidelines:

Riparian and Wetland areas are in properly functioning condition and are meeting regional and local management objectives.

Meaning that: The riparian and wetland vegetation is controlling erosion, stabilizing stream banks, shading water areas to reduce water temperature, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater and increasing recharge of ground water that is characteristic for these sites. Vegetation surrounding seeps and springs is controlling erosion and reflects the potential natural vegetation for the site.

Comments / Remarks: **There are no riparian or wetland areas on public lands within the allotment. There are no perennial streams in the allotment that could support riparian vegetation. A few willows, roses and cottonwood were found along one ephemeral drainage.**

E. Information relevant to the **BIODIVERSITY STANDARD 5**:
Northeast California/Northwest Nevada Resource Advisory Council Standards and Guidelines:
Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained.

Meaning that: Native and other desirable plant and animal populations are diverse, vigorous, able to reproduce, and support nutrient cycles and energy flows.

Indicator(s) Observed	**Information Reference** (from site visits and indicator calculations)
☑ plant vigor (production, mortality, decadence)	Spiny hopsage (*Grayia spinosa*) is possibly decreasing. Vegetation appears healthy and productive.
☑ diversity of age classes	Vegetation is diverse, with all age classes being represented.
☐ recruitment	
☐ community structure (layers)	
☑ community diversity	The vegetation is diverse. Greater amounts of shallow rooted perennial grasses, and smaller amounts of deep rooted perennial grasses than expected for the site.
☑ exotic plants (or invaders)	Cheatgrass and appears in only isolated patches, mostly adjacent to roads and other historically disturbed areas.
☑ wildlife life forms present (obligate)	Coyote, various rodent, badger, black-tailed jackrabbit, mule deer and pronghorn antelope utilize the allotment.
☑ special status species	There are no special status plants known or observed in this allotment.

Criteria

1. DO wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations? **Yes. Based on past fire data and human disturbance, patch size and shape is normal for this allotment. The vegetation structure is compromised slightly by the absence (or at least noted decrease) of Thurber's needlegrass, however, the absence of catastrophic events has maintained the majority of the vegetative structure. Thurber's needlegrass and bluebunch wheatgrass provide similar cover as each other, however bluebunch wheatgrass generally provides more pounds of seed per acre and is used for a greater duration of the year by deer and pronghorn than Thurber's needlegrass is. Other large structural components such as shrubs are present and well scattered. Only a few scattered trees are found within the allotment. One active (last checked in 2002) golden eagle nest is found on the rimrock along the eastern edge of the allotment. Although grazing has not occurred on the allotment for many (almost 20) years, the light to moderate use occurring late in the season is not likely to have any negative effects on the vegetation and associated habitats.**

2. ARE a variety of age classes present for most species? **Yes, most communities are healthy and reproductive, including low sagebrush, big sagebrush, bitterbrush, juniper woodland and cottonwood. Young plants are relatively common throughout the site. Sites with deep soil do have the potential for encroachment of Western juniper in the future, but at this time juniper is not significantly affecting other species. Reproductive capability was rated as 'none to slight' departure from expected values in the RHA.**

3. IS vigor adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur? **Yes, plant communities have the vigor and seedbank necessary to take advantage of favorable events. Annual production was rated as 'none to slight' departure from expected values in the RHA.**

4. DOES the distribution of plant species and their habitats allow for reproduction and recovery from localized catastrophic events? **Yes, plant species and habitats are adequately distributed across the landscape to recover from wildfires, floods, insect infestation, etc.**

5. ARE natural disturbances, such as fire, evident, but not catastrophic? **A check of the GIS layer of fire history indicates that no recent fires have occurred in the allotment however it is possible that small single tree fires have occurred unnoticed. There are no signs of large catastrophic fires and the 2005 NAIP dataset does not indicate catastrophic damage to large vegetation communities by any natural or manmade events.**

6. ARE non-native plant and animal species present at acceptable levels? **Yes, there are no known large-scale infestations of any noxious weeds on the allotment. Cheatgrass exists in some communities, however it has not become a dominant part of any known community, and native species are successfully competing with cheatgrass in these areas. Cheatgrass is the most common invasive on the site. The amount of cheatgrass present normally varies year to year and can be high in some years as was the case in 2005. Although no records exist for chukar in the allotment, given the amount of cheatgrass that can occur and the steep, rocky slopes, some number of this species are probably found in the allotment.**

7. ARE habitat areas sufficient to support diverse, viable, and desired populations, AND are they adequately connected with other similar habitat areas? **Yes, upland areas appear sufficient to support well connected, diverse, viable and desired populations. Sagebrush communities are generally healthy, large and continuous. Juniper range expansion into sagebrush communities currently affects only a small portion of the allotment. There is a small number of cottonwood and willow however cottonwood consists of older age trees only.**

In 2005 there was a large amount of annual grass (cheatgrass) present in the sites. In 2008 this was not the case. Most of the vegetation components expected in the DPC or PNC are present, however there seems to be a larger component of shallow rooted perennial grass (*Poa secunda* and *Elymus elymoides*) than expected for the site, with a smaller than expected deep rooted perennial grass component. Thurber's needlegrass (*Achnatherum thurberianum*) was noted as missing form the site. This site is expected, as referenced in the ecological site reference worksheet, to have deep rooted perennial grasses as the dominant component of the plant community.

Several of the forbs from the ecological site description were found however were somewhat less than expected for the site (1-2% of 2005 line point intercept data) compared to ecological site description of around 10%. The timing of data collection (October 2005) could have resulted in the forbs being recorded as litter, since they would have cured by that time. Grazing has not occurred on this allotment for around 20 years and overall, most of the vegetation in the allotment is vigorous and diverse.

8. IS adequate organic matter (litter and standing dead plant material) present for site protection and decomposition to

replenish soil nutrients and maintain soil health? **Yes. There is sufficient litter and standing dead material to replenish soil nutrients and maintain soil health on most sites. Litter amount from cheatgrass was higher than "normal" in 2005 (53-67%). Observed amount of litter in 2008 was thought to be much less.**

PART III - SUMMARY OF STANDARDS ACHIEVEMENT DETERMINATION AND RATIONALE

A. DETERMINATION ON STANDARDS ACHIEVEMENT

As of the date of the completion of this form, an examination of the information listed in Part II and recent field visits, if applicable, indicate the following with regard to standards achievement for the area identified in Part I:

Standard	Determination on Standard Achievement (check appropriate box for each standard)
Upland Soils	☑ Met / ☐ Not met but progressing towards / ☐ Not met and not progressing towards / ☐ N/A
Stream Health	☐ Met / ☐ Not met but progressing towards / ☐ Not met and not progressing towards / ☑ N/A
Water Quality	☐ Met / ☐ Not met but progressing towards / ☐ Not met and not progressing towards / ☑ N/A
Riparian/Wetland	☐ Met / ☐ Not met but progressing towards / ☐ Not met and not progressing towards / ☑ N/A
Biodiversity	☑ Met / ☐ Not met but progressing towards / ☐ Not met and not progressing towards / ☐ N/A

B. RATIONALE SUPPORTING STANDARDS ACHIEVEMENT DETERMINATION

The Standard for Upland Soils is currently being met for the North Larkspur Allotment #1115. The standard achievement determination was based on data from the Upland Health Assessments, Soil Stability Test, Line Point Intercept, Gap Intercept and photos taken during the assessment process. Soils information was obtained from the Surprise Valley/Home Camp Soil Survey. Professional judgment, management over the past 10 years and observations on the allotment were also used during the determination process.

The Upland Health Assessment was completed in 2005 on a NV23-20 Droughty Loam 8-10" P.Z. ecological site and soil mapping unit #460 – Macnot-Nomazu complex. The Macnot soil series consists of very deep, somewhat excessively drained soils that formed in volcanic ash and alluvium from volcanic rocks. The upland health assessments attribute rating for Soil and Site Stability rated out Stable with all the indictors in the None-Slight category. The attribute rating for Hydrologic Function rated out as Functioning with 9 of the 10 indicators (90%) in the None-Slight category and 1 indicator (10%) in Moderate.

The current grazing system using the allotment in October and November with light to moderate utilization levels in the uplands has resulted in more residual forage being left after the grazing season providing sufficient ground cover to protect upland soils from accelerated erosion. Although grazing has not occurred on the allotment for many (almost 20) years, the light to moderate use occurring late in the season (as is permitted) is not likely to have any negative effects on the vegetation and soil stability. The perennial grasses and shrubs are also expected to be benefiting from the late season use.

The Standard for Stream Health: N/A - There are no perennial or intermittent streams located on public lands within the allotment.

Water Quality: N/A - There are no perennial or intermittent streams located on public lands within the allotment. All pit reservoirs are currently meeting the needs of beneficial use for watering wildlife and livestock.

Riparian/Wetland: N/A – There is no riparian or wetland areas located on public lands within the allotment.

The Standard for Biodiversity is being met on all 7,352 acres of the North Larkspur Allotment #1115. Although Thurber's Needlegrass appears to now be absent or uncommon, a functional equivalent (height and cover about the same) exists on the allotment. Grazing this allotment as permitted (light/moderate late season use) should promote maintenance of existing conditions.

PART IV - FOR THOSE STANDARDS NOT ACHIEVED, SUMMARY OF CONTRIBUTING FACTOR(S) DETERMINATION AND SUPPORTING RATIONALE

A. DETERMINATION OF CONTRIBUTING FACTORS

As of the date of the completion of this form, an examination of the information listed in Part II and recent field visits, if applicable, indicate that the following are contributing factors for failing to achieve the standards as indicated in Part III for the area identified in Part I:
Non-achieved Standard (s) (from Part III):

FLPMA Principal or Major Uses	Information Reference (what data was reviewed - type and information date)	
☐ Domestic Livestock Grazing	☐ actual grazing use	_____
	☐ grazing "licenses"	_____
	☐ utilization records	_____
	☐ field notes / photographs	_____
	☐ other	_____
☐ Fish and Wildlife Development and Utilization	☐ utilization	_____
☐ Mineral Exploration and Development	☐ road building	_____
☐ Rights-of-way	☐ _____	_____
☐ Outdoor Recreation	☐ road building	_____
☐ Timber Production	☐ _____	_____

Other Events or Circumstances Considered	Information Reference (what data was reviewed - type and information date)	
☐ Wild horse and Burro use	☐ census / distribution data	_____
	☐ other	_____
☐ exotic plant presence		_____
☐ insect impacts		_____
☐ abnormal fire frequency or lack of fire		_____
☐ abnormal climatic events		_____
☐ other _____		_____

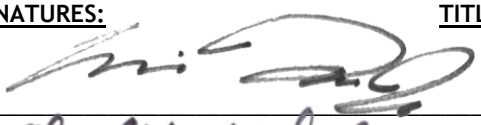
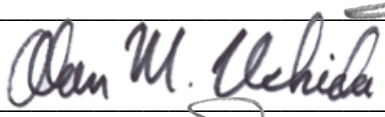
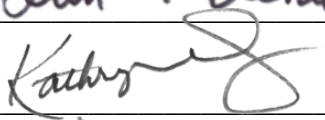
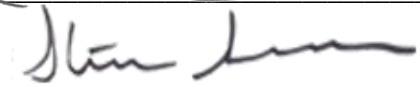
CONTRIBUTING FACTOR(S) (LIST):

B. RATIONALE FOR CONTRIBUTING FACTOR DETERMINATION

PART V - BLM STAFF WHO REVIEWED THE INFORMATION AND RECOMMENDED PRIORITY FOR DEVELOPMENT AND IMPLEMENTATION OF APPROPRIATE ACTION TO MAKE SIGNIFICANT PROGRESS TOWARDS ACHIEVING THE STANDARD(S)

The following staff have participating in examining the information listed in Part II and in making the standard(s) achievement and contributing factor determination(s).

Elias Flores, Wildlife Biologist
Alan Uchida, Watershed Specialist
Kathryn Dyer, Rangeland Management Specialist
Steve Surian, Sup. Natural Resource Specialist/Wild Horse Specialist

SIGNATURES:	TITLES:
	Wildlife Biologist
	Watershed Specialist
	Rangeland Management Specialist
	Sup. Rangeland Management Specialist/Wild Horse Specialist

In the cases where the standards are not achieved and after considering all relevant information, we recommend that the priority for developing and implementing appropriate action to achieve standards in the area identified in Part I be (check one):

☐ high ☐ medium ☐ low .

We base our recommendation on the following ratings of the following factors:

Biological / Physical
Severity of resource impacts resulting from non-achievement of the standard - ☐ high ☐ medium ☐ low
Size of affected area -
Ability to arrest further degradation - ☐ easily done ☐ unknown ☐ difficult
Other:

Administrative
Proportion of federal land in the allotment - ☐ high ☐ medium ☐ low
Pending administrative actions (permit lease renewal / transfer, etc.) - ☐ pending ☐ not pending until FY ____
Other _____

Social
Anticipated cooperation of the permittee / lessee - ☐ expected ☐ not expected ☐ unknown
Legal requirements ☐ compelling ☐ not compelling
Other _____

Economic Considerations

PART VI - DOCUMENTATION OF THE INVOLVEMENT OF PERMITTEES, STATE AGENCIES AND THE INTERESTED PUBLIC IN MAKING STANDARDS CONFORMANCE DETERMINATION AND CONTRIBUTING FACTORS DETERMINATION

Indicate the occurrence of public participation (e.g. permittee, interested public, other Federal or State /local agency), or opportunities for public participation that pertains to the review of standards achievement and contributing factors (who, when, and conversation or meeting summary):

PART VII - AUTHORIZED OFFICER'S DETERMINATION AND PRIORITY FOR APPROPRIATE ACTION DEVELOPMENT AND IMPLEMENTATION

( ) Existing grazing management practices or levels of grazing use in the North Larkspur Allotment #1115 promotes achievement of significant progress towards the Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing of July, 2000 and conforms with the Guidelines for Livestock Grazing Management.

( ) Existing grazing management practices or levels of grazing use in the North Larkspur Allotment #1115 will require modification or a change prior to the next grazing season to promote achievement of the Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing of July, 2000 and conforms with the Guidelines for Livestock Grazing Management.

I have reviewed and concur with the determinations and supporting rationale regarding the achievement or lack thereof of rangeland health standards documented herein and, in the cases where standards are not achieved, the determination and rationale regarding the contributing factor(s) for failure to achieve the standards. I have determined that the priority for developing and implementing appropriate action to achieve significant progress to achieve standards for the area identified in Part I is (check one)

Priority: □ high □ medium □ low

Staff is directed to develop appropriate action for my consideration and implementation in accordance with this priority.

SURPRISE FIELD MANAGER

6-25-08
DATE

COMMENTS:

Appendix A

Transect 1

	Canopy Cover (%)	Bare Ground (%)	Basal Cover (%)	Litter (%)
North Larkspur Transect Data	54%	3%	11%	58%
Ecological Site Reference Data	30%-40% (canopy and basal combined)	±50%	30%-40% (canopy and basal combined)	±25%

In addition to the basal cover represented by perennial vegetation in the table above, there is also 26% ground cover by lichen and 19% ground cover by biocrust.

Transect 2

	Canopy Cover (%)	Bare Ground (%)	Basal Cover (%)	Litter (%)
North Larkspur Transect Data	50%	10%	7%	53%
Ecological Site Reference Data	30%-40% (canopy and basal combined)	±50%	30%-40% (canopy and basal combined)	±25%

In addition to the basal cover represented by perennial vegetation in the table above, there is also 6% ground cover by lichen and 23% ground cover by biocrust.

Transect 3

	Canopy Cover (%)	Bare Ground (%)	Basal Cover (%)	Litter (%)
North Larkspur Transect Data	52%	6%	1%	67%
Ecological Site Reference Data	30%-40% (canopy and basal combined)	±50%	30%-40% (canopy and basal combined)	±25%

In addition to the basal cover represented by perennial vegetation in the table above, there is also 9% ground cover by lichen.

Gap Intercept transect data collected on the North Larkspur Allotment on July 6, 2005 is summarized in the tables below.

Transect 1

Type of Gap	% of line in 1- 2 foot gaps	% of line in 2.1-3 foot gaps	% of line in 3.1-6 foot gaps	% of line in >6 foot gaps	Total % of 100 foot line in gaps
Canopy	7.31	5.4	8.9	21.8	43.41
Basal	2.1	2.69	3.8	0	8.59

This gap data displays very low amounts of basal gaps, due in large part to the abundant amount of biocrust and lichen found throughout the sites.

Transect 2

Type of Gap	% of line in 1- 2 foot gaps	% of line in 2.1-3 foot gaps	% of line in 3.1-6 foot gaps	% of line in >6 foot gaps	Total % of 100 foot line in gaps
Canopy	2	2.2	26.5	42.01	72.71
Basal	3.8	4.7	4.4	0	12.9

This gap data displays very low amounts of basal gaps, due in large part to the abundant amount of biocrust and lichen found throughout the sites.

Transect 3

Type of Gap	% of line in 1- 2 foot gaps	% of line in 2.1-3 foot gaps	% of line in 3.1-6 foot gaps	% of line in >6 foot gaps	Total % of 100 foot line in gaps
Canopy	1.9	0	11.69	71.5	85.09
Basal	7.29	4.5	0	0	11.79

This gap data displays very low amounts of basal gaps, due in large part to the abundant amount of biocrust and lichen found throughout the sites.